

**INTERFACE RECEIVE CIRCUITS FOR MODULARIZED DATA**  
**OPTIMIZATION ENGINES AND METHODS THEREFOR**

ABSTRACT

5           A data optimization engine for deoptimizing selected frames of a first stream of data, comprising a receive interface circuit coupled to an optimization processor. The receive interface circuit is configured for receiving the first stream of data. The receive interface circuit includes a traffic controller circuit for separating frames in the first stream of data into a first deoptimizable frame and a first non-deoptimizable  
10   frame, and a deoptimization front-end circuit coupled to the traffic controller circuit to receive at least a first portion of the first deoptimizable frame. The deoptimization front-end circuit includes a protocol conversion circuit configured to convert data in the first portion of the first deoptimizable frame from a first protocol to a second protocol suitable for processing by the optimization processor, the first protocol  
15   specifies a first word length, the second protocol specifies a second word length different from the first word length, wherein the optimization processor is configured to deoptimize the first portion of the first deoptimizable frame by performing at least one of decompression and decryption on the first portion of the first deoptimizable frame.

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